

REMARKS

The above amendments and these remarks are responsive to the Office action dated August 11, 2004. Claims 1-26 are pending in the application. In the Office action, the drawings are objected to under 37 CFR § 1.83(a) for not showing every feature of the invention specified in the claims. Claim 20 is rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,729,631 to Takahashi et al. Claims 1-4, 6-11, 14-19 and 21-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Takahashi in view of U.S. Patent No. 4,066,332 to Kato et al. Claims 5 and 12-13 are rejected under 35 U.S.C. § 101 for double patenting.

In view of the amendments above, and the remarks below, applicants respectfully request reconsideration of the application under 37 C.F.R. § 1.111 and allowance of the pending claims.

Objections to the Drawings

The drawings are objected to under 37 CFR § 1.83(a) for not showing every feature of the invention specified in the claims. It is asserted that the “lens positioned adjacent the reflective surface” recited in claim 4 is not shown in any drawing.

Applicants respectfully traverse this assertion. Fig. 8 shows a screen 314 having a plurality of reflective elements 330, wherein each reflective element includes a lens 334 positioned adjacent a reflective surface 332. This embodiment is described in the specification beginning at page 13, line 26 and continuing through page 15, line 8. Applicants therefore respectfully request that the objection to the drawings be withdrawn.

Rejections under 35 USC § 102

Applicants also respectfully traverse the rejection of claim 20 as anticipated by Takahashi. Claim 20 recites a rear projection display system including an image source, a rear reflective surface, and a screen, the screen including a lens array and a mirror array positioned adjacent to and coplanar with the lens array, wherein the lens array includes a plurality of lenses configured to direct light incident on the screen from a first angle onto the mirror array to be reflected toward the rear reflective surface, and wherein the screen is configured to direct incident light from a second angle through the mirror array for display to a viewer.

In contrast, Takahashi does not disclose a rear projection display system having all of the elements of claim 20. The rejection states that Takahashi discloses in Fig. 16b “a rear reflective surface (M), a screen (S) including a lens array (column 7, lines 25-26) and a mirror array (M) positioned adjacent the lens array.” However, the part “M” asserted to be the mirror array is the same part asserted to be the rear reflective surface. Moreover, part “M” is not included in the screen, as is the mirror array of claim 20. Instead, part “M” is positioned opposite the screen to reflect light toward the screen. Therefore, for at least these reason, claim 28 is not anticipated by Takahashi, and is in condition for allowance.

Rejections under 35 USC § 103

Turning next to the rejections under 35 U.S.C. § 103(a), applicants respectfully traverse the rejection of claims 1-4, 6-11, 14-19 and 21-26 as being unpatentable over Takahashi in view of Kato. For a claim to be obvious over a combination of references, the combination of references must teach or suggest each and every element of the

claim. Claim 1 is not obvious over Takahashi in view of Kato because the combination of the references fails to teach or suggest each element of claim 1.

Claim 1 recites a rear projection display system including an image source, a rear reflector, and a screen configured to display the projected image, wherein the screen includes a plurality of angularly discriminating reflective elements configured to reflect light incident on the screen from a first angle toward the rear reflector, and to allow light incident on the screen from a second angle to be transmitted through the screen for display.

In contrast, Takahashi discloses a rear projection screen apparatus having a screen with a plurality of elongated prisms on its inside surface. The prisms are configured to reflect incident light for transmission by the screen, and thus toward a viewer rather than toward a rear reflector. This is shown in each of Figs. 3, 4, and 6-8 of Takahashi, and is described in the Abstract. Takahashi does not disclose a screen configured to reflect light incident on the screen from a first angle toward a rear reflector. While some figures of Takahashi may have lines that appear to show light reflected from the screen in a rearwardly direction, these lines are actually geometric reference lines, rather than rays representing a path of light. Figs. 3 and 6 from Takahashi are reproduced below to clarify this point.

Other figures from Takahashi have appearances similar to these. Note than in these and other figures from Takahashi, all light incident on the screen is transmitted through the screen, and none is reflected rearwardly.

Likewise, Kato also does not disclose or suggest reflecting light incident on the screen from a first angle toward the rear reflector for reflection back toward the screen. Kato discloses a rear projection screen having a plurality of louvers embedded in a light diffusion material. All light incident on the screen is either transmitted through the screen or absorbed by the louvers. None is disclosed as being reflected back toward a rear reflector. Because neither Kato nor Takahashi discloses nor suggests a plurality of angularly discriminating reflective elements configured to reflect light incident on the screen from a first angle toward the rear reflector, these references can not be combined to produce a rear projection display system having all of the elements of claim 1. Claim 1 is therefore not obvious over these references, and is in condition for allowance. Moreover, claims 2-11 depend from and include all of the elements of claim 1, and are thus also not obvious over Takahashi in view of Kato.

Next, applicants also respectfully traverse the rejection of claims 14 and 15 as obvious over Takahashi in view of Kato. Claims 14 and 15 each depend from claim 12, and are therefore discussed in the context of base claim 12. Base claim 12 recites a rear projection display system for displaying an image to a viewer, the rear projection display system having a front side and a back side and including an image source configured to project an image, a rear reflector disposed against the back side of the display system, and a selectively reflective screen disposed against the front side of the display system, the screen including a plurality of reflective elements configured to

reflect light incident on the screen from an upwardly direction toward the rear reflector and to transmit light incident on the screen from a downwardly direction between the reflective elements.

In contrast, the combination of Takahashi and Kato fails to teach or suggest all of the elements of claim 12. For example, as described above, Takahashi teaches a screen that transmits all incident light, and Kato teaches a screen that either transmits or absorbs all incident light. Therefore, neither Takahashi nor Kato teaches a screen configured to reflect light incident on the screen from an upwardly direction toward a rear reflector and to transmit light incident on the screen from a downwardly direction between the reflective elements. For at least this reason, claims 14-15 are not obvious over Takahashi in view of Kato.

Next, claim 16 recites a rear projection display system, including a screen configured to display an image to a viewer, an image source configured to project the image, and a rear reflective surface configured to reflect light from the image source onto the screen, wherein the screen includes a plurality of generally planar, spaced-apart reflective elements oriented with respect to a vertical plane of the screen such that incident light from the image source is first reflected from the reflective elements toward the rear reflective surface and then reflected from the rear reflective surface toward the screen for transmission between the reflective elements.

In contrast, the combination of Takahashi and Kato fails to teach or suggest all of the elements of claim 16. For example, as described above, the screen of Takahashi is disclosed as transmitting all incident light. Likewise, the screen of Kato either transmits or absorbs all incident light. Therefore, neither Takahashi nor Kato teaches a rear

projection display system in which light from the image source is first reflected from reflective elements in the screen toward a rear reflective surface and then is reflected from the rear reflective surface toward the screen for transmission between the reflective elements. For at least this reason, claim 16 is not obvious over Takahashi in view of Kato. Furthermore, claims 17-19 depend from and include all of the elements of claim 16, and are therefore also not obvious over this combination of references.

Next, applicants also respectfully traverse the assertion that claim 21 is obvious over Takahashi in view of Kato. Claim 21 has been amended to recite an image display device including a light source for projecting light, a rear reflective surface, and a plurality of reflective elements configured to angularly discriminate light, wherein light incident on the plurality of reflective elements from a first angle is reflected toward the rear reflective surface, and light incident on the plurality of reflective elements from a second angle is transmitted through the plurality of reflective elements.

In contrast, as described above, neither Takahashi nor Kato teaches or suggests all of the elements of claim 21. For example, neither Takahashi nor Kato teaches a plurality of reflective elements configured to reflect light incident from a first angle on the reflective elements toward a rear reflective surface, and to transmit light incident from a second angle through the plurality of reflective elements. Instead, Takahashi teaches a screen that transmits all incident light, and Kato teaches a screen that either transmits or absorbs all incident light. Therefore, for at least this reason, claim 21 is not obvious over Takahashi in view of Kato. Furthermore, claims 22-26 depend from and include all of the elements of claim 21, and are therefore also not obvious over Takahashi in view of Kato.

Rejections under 35 U.S.C. § 101

In response to the rejection of claims 5 and 12-13 for statutory double patenting, applicants herein cancel claim 13 without prejudice. Applicants respectfully traverse the assertion that claims 5 and 12 are the same as claims 3-4 of US. Patent No. 6,728,032 B2 to Peterson et al. Claims 3-4 of Peterson read as follows (claim 3 depends from claim 1, and is written in independent form herein):

3. A rear projection display system, comprising:
an image source for projecting an image;
a rear reflector; and
a screen configured to display the image, wherein the screen includes
a surface having a plane, and
a plurality of angularly discriminating reflective elements,
wherein each angularly discriminating reflective element includes a reflective surface, each reflective surface being spaced apart from adjacent reflective surfaces, and wherein each reflective surface is oriented diagonally to the plane of the screen surface, such that light incident on the screen from a first angle is reflected toward the rear reflector, and light incident on the screen from a second angle is transmitted through the screen for display, and further comprising a casing, wherein the image source is positioned within the casing.
4. A rear projection display system for displaying an image to a viewer, the rear projection display system having a front side and a back side and comprising:
an image source configured to project an image;
a rear reflector disposed adjacent the back side of the display system; and
a selectively reflective screen disposed adjacent the front side of the display system, the screen including a plurality of reflective elements configured to reflect light incident on the screen from an upwardly direction toward the rear reflector and to transmit light incident on the screen from a downwardly direction between the reflective elements,
wherein each reflective element of the plurality of reflective elements is oriented diagonally to the screen.

In contrast, neither of claims 5 or 12 of the present application has the same scope as either of these prior claims. For example, each of claims 3 and 4 of Peterson recites the phrase “oriented diagonally.” In contrast, neither claim 5 nor claim 12 of the present application recites “oriented diagonally.” Therefore, for at least this reason, claims 5 and 12 of the present application are not the same as claims 3 and 4 of Peterson.

Applicants believe that this application is now in condition for allowance, in view of the above amendments and remarks. Accordingly, applicants respectfully request that the Examiner issue a Notice of Allowability covering the pending claims. If the Examiner has any questions, or if a telephone interview would in any way advance prosecution of the application, please contact the undersigned attorney of record.

Respectfully submitted,

KOLISCH HARTWELL, P.C.

M. Matthews Hall
M. Matthews Hall
Registration No. 43,653
Customer No. 23581
Of Attorneys for Assignee
520 S.W. Yamhill Street, Suite 200
Portland, Oregon 97204
Telephone: (503) 224-6655
Facsimile: (503) 295-6679

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Renee Knight